Technical Report No. 68.402.20.1252.01
Rev. 00
Dated 2020-12-16

Client:	BIC TRADING
Address:	Gi-206, Lotte Castle, 347, Jong-ro, Jongno-gu, Seoul, Republic of Korea
Attn.:	Mr. Lee, Sang-won
Sample Description:	Bio Ceramic Cookware
Model No.:	CHEF MEDAL
Sample Received Date:	2020-12-02
Test Period:	From 2020-12-02 to 2020-12-15
Location of Testing:	TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
Purpose of examination:	As specified by client, to test as regulated by the German Food & Feed Acts LFGB (§ 30 & 31) and Regulation (EC) No.1935/2004
Test Result:	Refer to following page(s)
Remark:	The result relates only to the items tested.

TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch
TÜV SÜD Group

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SUMMARY OF TEST RESULTS

No.	Test Requested	Conclusion	Remarks
1.	For material: Plastics or coating – Overall Migration test for compliance with regulation (EU) No. 10/2011, (EU) No. 2016/1416, (EU) No. 2017/752 and (EU) No. 2018/79	**PASS**	
2.	For material: Plastics or coating – Specific Migration of Primary Aromatic Amine for compliance with regulation (EU) 10/2011.	**PASS**	
3.	For material: Polycarbonates (PC)/Non-stick coating – Specific Migration of Bisphenol A for compliance with regulation (EU) No. 10/2011 and it's amendment (EU) No. 2018/213	**PASS**	
4.	For material: Non-stick coating – Specific Migration of Phenolic substances	**PASS**	
5.	For material: Non-stick coating – Specific Migration of Formaldehyde	**PASS**	
6.	For material: Non-stick coating – Specific Migration of PFOA and PFOS	**PASS**	
7.	For material: Metal and Metal alloy – Specific Migration of 21 Heavy Metals according to European Directorate for the Quality of Medicines & Healthcare Technical guide Resolution CM/Res(2013)9	**PASS**	
8.	For material: Glass and ceramics – Leachable Lead and Cadmium content test for compliance with DIN 51032, 84/500/EEC and 2005/31/EC.	**PASS**	
9.	For material: Glass and ceramics – Leachable Cobalt content	**PASS**	
10.	Sensory test – With reference to DIN 10955	**PASS**	

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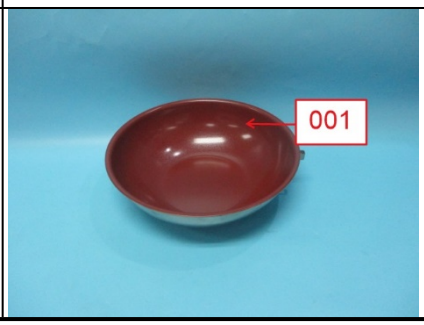
1. TESTED SUBJECT DESCRIPTION

Sample Number	Item Name	Tested Material Description	Photo
001	Pan	Red ceramic coating with metal	

2. TEST RESULT

2.1. OVERALL MIGRATION TEST

Test method: As specified in Regulation (EU) No. 10/2011; with reference to EN 1186:part 1, part 2, part 3, part 8, part 9 & part 14 :2002.

Simulant Used	Test Condition	Result [mg/dm²]	Maximum Permissible Limit [mg/dm²]
		Sample 001	
3% Acetic Acid	100 °C for 2 hours	< 3.0	10
10% Ethanol	100 °C for 2 hours	< 3.0	10
95% Ethanol	60 °C for 6 hours	< 3.0	10
Isooctane	60 °C for 4 hours	< 3.0	10

Note:

- "°C" denotes degree Celsius
- "mg/dm²" denotes milligram per square decimeter
- "<" denotes less than
- The specification was quoted from regulation (EU) 10/2011.

2.2. SPECIFIC MIGRATION OF PRIMARY AROMATIC AMINE TEST

Test method: As specified in Regulation (EU) No. 10/2011, the sample(s) were migrated with food stimulant, followed by Ultraviolet–visible Specphotometer (UV-Vis) analysis. [Detection limit: 0.01 mg/kg]

Testing condition and simulant: 3% acetic acid at 100 °C for 2 hour(s).

Test Item	Result [mg/kg]	Maximum Permissible Limit [mg/kg]
	Sample 001	
Migration of Primary Aromatic Amine	< 0.01	Not Detected (< 0.01 mg/kg)

Note:

- "°C" denotes degree Celsius
- "mg/kg" denotes milligram per kilogram foodstuff
- "<" denotes less than
- The specification was quoted from regulation (EU) 10/2011.

2.3. SPECIFIC MIGRATION OF BISPHENOL A TEST

Test method: As specified in Regulation (EU) No. 10/2011, the sample(s) were migrated with food simulant, followed by Liquid Chromatography with Tandem Mass Spectrometry Detection (LC-MS/MS) analysis.

Testing condition and simulant: 95% ethanol at 60 °C for 6 hour(s).

Test Item	Result [mg/kg]	Maximum Permissible Limit [mg/kg]
	Sample 001	
Migration of Bisphenol A	< 0.02	0.05

Note:

- "°C" denotes degree Celsius
- "mg/kg" denotes milligram per kilogram foodstuff
- "<" denotes less than
- The specification was quoted from regulation (EU) 10/2011 and it's amendment (EU) No. 2018/213.

2.4. SPECIFIC MIGRATION OF PHENOLIC SUBSTANCES TEST

Test method: With reference to DIN 53704:1988, the sample(s) were migrated with food stimulant, followed by Ultraviolet–visible Specphotometer (UV-Vis) analysis.

Testing condition and simulant: 3% acetic acid at 95 °C for 1 hour(s).

Test Item	Result [mg/dm²]	Maximum Permissible Limit [mg/dm²]
	Sample 001	
Migration of Phenolic Substances	< 0.05	0.05

Note:

- "mg/dm²" denotes milligram per square decimeter
- "<" denotes less than
- The specification was quoted from the Recommendation of the BfR "Kunststoffe im Lebensmittelverkehr" Part LI "Temperature Resistant Polymer Coating Systems for Frying, Cooking and Baking Utensils"

2.5. SPECIFIC MIGRATION OF FORMALDEHYDE TEST

Test method: The sample(s) were migrated with food stimulant, followed by Ultraviolet–visible Specphotometer (UV-Vis) analysis.

Testing condition and simulant: 3% acetic acid at 100 °C for 2 hour(s).

Test Item	Result [mg/kg]	Maximum Permissible Limit [mg/kg]
	Sample 001	
Migration of Formaldehyde	< 1	15

Note:

- "°C" denotes degree Celsius
- "mg/kg" denotes milligram per kilogram foodstuff
- "<" denotes less than
- The specification was quoted from the Recommendation of the BfR "Kunststoffe im Lebensmittelverkehr" Part LI "Temperature Resistant Polymer Coating Systems for Frying, Cooking and Baking Utensils"

2.6. SPECIFIC MIGRATION OF PFOA AND PFOS TEST

Test method: The samples were tested migrated with food simulant, followed by Liquid Chromatography with Tandem Mass Spectrometry Detection (LC-MS/MS) analysis.

Testing condition and simulant: 3% acetic acid at 100 °C for 2 hour(s).

Test Item	Result [mg/dm²]	Maximum Permissible Limit [mg/dm²]
	Sample 001	
Migration of PFOA and PFOS	< 0.002	0.005

Note:

- "°C" denotes degree Celsius
- "mg/dm^2" denotes milligram per square decimeter
- "<" denotes less than
- The specification was quoted from the Recommendation of the BfR "Kunststoffe im Lebensmittelverkehr" Part LI "Temperature Resistant Polymer Coating Systems for Frying, Cooking and Baking Utensils"

2.7. SPECIFIC MIGRATION OF HEAVY METAL CONTENT TEST

Test method: The sample(s) were extracted with food simulant , followed by analysis using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES) and Inductively Coupled Plasma Mass Spectrometry(ICP-MS).

Testing condition and simulant: 0.5% citric acid at 100 °C for 2 hour(s).

No.	Test Item		Result [mg/kg]		Maximum Permissible Limit [mg/kg]	
			Sample 001			
			1st+2nd migration	3rd migration	1st+2nd migration	3rd migration
1.	Barium	(Ba)	<0.2	<0.1	8.4	1.2
2.	Copper	(Cu)	<0.2	<0.1	28	4
3.	Iron	(Fe)	<0.2	<0.1	280	40
4.	Tin	(Sn)	<1.0	<0.5	700	100
5.	Chromium	(Cr)	<0.1	<0.05	1.75	0.250
6.	Manganese	(Mn)	<0.2	<0.1	12.6	1.8
7.	Zinc	(Zn)	< 0.2	< 0.1	35	5
8.	Aluminum	(Al)	<0.2	<0.1	35	5
9.	Lithium	(Li)	<0.01	<0.005	0.336	0.048
10.	Beryllium	(Be)	< 0.004	<0.002	0.07	0.01
11.	Vanadium	(V)	< 0.004	< 0.002	0.07	0.01
12.	Nickel	(Ni)	<0.1	<0.05	0.98	0.14
13.	Cobalt	(Co)	<0.004	<0.002	0.14	0.02
14.	Arsenic	(As)	<0.0008	<0.0004	0.014	0.002
15.	Molybdenum	(Mo)	<0.004	<0.002	0.84	0.12
16.	Silver	(Ag)	<0.004	<0.002	0.56	0.08
17.	Cadmium	(Cd)	<0.0008	<0.0004	0.035	0.005
18.	Antimony	(Sb)	<0.01	<0.005	0.28	0.04
19.	Mercury	(Hg)	< 0.001	< 0.0005	0.021	0.003
20.	Thallium	(Tl)	< 0.0002	< 0.0001	0.0007	0.0001
21.	Lead	(Pb)	< 0.02	< 0.01	0.07	0.010

Note:

- "°C" denotes degree Celsius
- "mg/kg" denotes milligram per kilogram foodstuff
- "<" denotes less than

2.8. LEACHABLE LEAD AND CADMIUM CONTENT TEST

Test method: With reference to BS EN 1388: Part 1: 1996 and BS EN 1388: Part 2: 1996, the sample(s) were migrated with food simulant, followed by analysis using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES).

Testing condition and simulant: 4% acetic acid at 22 °C for 24 hour(s).

Test Item	Unit	Result	Maximum Permissible Limit
		Sample 001	
Leachable Lead (Pb)	mg/L	< 0.10	4.0
Leachable Cadmium (Cd)	mg/L	< 0.05	0.3

Note:

- "mg/L" denotes milligram per Litre
- "<" denotes less than
- The specification was quoted from directive 84/500/EEC for article as hollowware (category 2).

2.9. LEACHABLE COBALT CONTENT TEST

Test method: With reference to BS EN 1388: Part 1: 1996 and BS EN 1388: Part 2: 1996, the sample(s) were migrated with food simulant, followed by analysis using Inductively Coupled Plasma Optical Emission Spectrometry (ICP-OES).

Testing condition and simulant: 4% acetic acid at 22 °C for 24 hour(s).

Test Item	Unit	Result	Maximum Permissible Limit
		Sample 001	
Leachable Cobalt (Co)	mg/L	<0.05	0.1

Note:

- "mg/L" denotes milligram per Litre
- "<" denotes less than
- The specification was quoted from Germany Bavarian State Ministry of Justice and Consumer Protection.

2.10. SENSORY TEST

Test method: With reference to DIN 10955: 2004. The submitted sample was treated with food stimulant. After this treatment, treated water was examined by panels with regard to any divergence in smell and taste.

Testing condition and simulant: Distilled water at 100 °C for 2 hour(s).

Test Item	Grading Result	Recommended Level
	Sample 001	
Transfer of Smell	0.5	< 2.5
Transfer of Taste	0	< 2.5

Note:

- "<" denotes less than
- Explanation for grading are listed as below:
  Grading 0: No perceptible taste/smell deviation
  Grading 1: Just perceptible taste/smell deviation
  Grading 2: Weak taste/smell deviation
  Grading 3: Clear taste/smell deviation
  Grading 4: Strong taste/smell deviation

---------End of Report---------